



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

REC'D 29 NOV 2004

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Applicant's or agent's file reference P-5522-PC		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/IL 03/01079	International filing date (day/month/year) 16.12.2003	Priority date (day/month/year) 16.12.2002	
International Patent Classification (IPC) or both national classification and IPC H04N5/238			
Applicant ELBIT SYSTEMS LTD. et al.			
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>			
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>			
Date of submission of the demand 07.07.2004		Date of completion of this report 26.11.2004	
Name and mailing address of the International preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized Officer Schreib, F Telephone No. +49 89 2399-7114 	

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/IL 03/01079

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-17 as originally filed

Claims, Numbers

1, 2 as originally filed

3-12 received on 17.02.2004 with letter of 17.02.2004

Drawings, Sheets

1/8-8/8 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

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5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

see separate sheet

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-12
	No: Claims	
Inventive step (IS)	Yes: Claims	2,10,12
	No: Claims	1,3-9,11
Industrial applicability (IA)	Yes: Claims	1-12
	No: Claims	

2. Citations and explanations

see separate sheet

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Re Item V

2. Reference is made to the following document:

- D1: US 6 069 352 A (GUTIN MIKHAIL A ET AL) 30 May 2000 (2000-05-30)
D2: US 6 323 474 B1 (BACARELLA ANTONIO VERNON) 27 November 2001
(2001-11-27)
D3: US-A-5 872 595 (MONAHAN JOHN F) 16 February 1999 (1999-02-16)

3. The subject-matter of independent apparatus claims 1, 9 and independent method claim 11 does not meet the requirements of Article 33(3) PCT.

3.1 Document D1 (the references in parentheses applying to this document) discloses:

A system for handling light (*see col. 1, lines 11-15*) that is amenable for intensification by an Image Intensifier (*light is always amenable for intensification by an image intensifier*), and wherein the system includes

light regulating means for regulating light intensity (*see col. 5, lines 55-62 and Fig. 7, reference 100: The micromirror array=MMA with reference 100 is a light regulating means*), wherein said light regulating means are either positioned externally to said image intensifier at the focal plane of the light to be intensified, or placed internally at the focal plane of said image intensifier before the photo sensitive area of said image intensifier (*see Fig. 7, references 100, 530 and 758: The light regulating means 100 is positioned externally to said image intensifier*); and a control and feedback circuit that includes an image sensor (*see col. 5, line 67-col. 6, line 4 and Fig. 7, references 540 and 770: The monitoring detector 770 is the image sensor. The blocks 540 and 770 can be regarded as a control and feedback circuit with image sensor*), wherein said image sensor is capable of detecting the zones with intensely bright light areas and is coupled to an image processing means that relates the locations of said zones with intensely bright light areas that where detected by said image sensor to the respective areas on said light regulating means, in a manner enabling selective operation of said light regulating means at those areas, so that it can influence the image

received from said image intensifier (*see col. 6, lines 28-39 and col. 6, lines 63-65 and Fig. 8: The pixels having a light intensity above a certain threshold are switched off by the light regulating means*); and wherein said light regulating means being a reflective MEMS (*see col. 4, lines 49-55: The micro mirror array used in the system of Fig. 7 is not transmissive but reflective*) component.

- 3.2 The subject-matter of claim 1 differs from the disclosure of D1 in that the MEMS component is transmissive. Therefore the problem to be solved can be regarded as how to implement another type of light regulating means.
- 3.3 Document D2 delivers exactly for the field of blooming protection when using image intensifiers (*see D2, col. 2, lines 12-21*) the solution to use a transmissive filter (*see D2, col. 3, lines 15-19 and Fig. 1*) which specifically filters the bright areas of an image (*see D2, col. 2, lines 12-15 and col. 3, lines 38-41*). As transmissive MEMS are well known (*see description of application page 3, lines 18-23*), the person skilled in the art arrives at the subject-matter of claim 1 without an inventive step by combining the teachings of D1, D2 and general technical knowledge.
- 3.4 The subject-matter of apparatus claim 9 and method claim 11 corresponds to the subject-matter of method claim 1. Therefore also independent claims 9 and 11 do not meet the requirements of Article 33(3) PCT.
4. The subject-matter of claim 2 differs from D1 in that the image intensifier is turned on after the time slot the light rays have been deflected. The light intensifier additionally is gated synchronously with the MEMS component. The problem to be solved therefore can be regarded as how to increase the dynamic range of a light intensifying imaging system.

Document D3 discloses a solution for this problem (*see col. 3, lines 34-40*). In D3, col. 5, lines 62-64 gating of the image intensifier is proposed as a solution to increase the dynamic range of the imaging system. But there is no hint in D1 and D3 that the light intensifier shall be turned on at a defined time = "time slot" after the event the light has been deflected by the MEMS component. Therefore the person skilled in the art does not arrive at the solution of claim 2 by combining the teachings of D1 and D3.

Therefore the subject-matter of claim 2 meets the requirements of Article 33(2) PCT and 33(3) PCT.

Claims 10 and 12 also have this feature. Therefore also claims 10 and 12 meet the requirements of Article 33(2) PCT and 33(3) PCT.

5. Dependent claims 3-8 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step (Article 33(3) PCT).

Annotations to clarity

6. The subject-matter of claims 11 and 12 does not meet the requirements of Article 6 PCT. The characterizing part of method claims 11 and 12 consists of a structural feature of an apparatus, namely "light regulating means being a transmissive MEMS component". A structural feature of an apparatus does not limit a method claim.
7. The subject-matter of claims 10 and 12 is not clear as the feature "instead of transmissive MEMS" is placed between parentheses. According Rule 6.2 (b) PCT parentheses are reserved for reference signs. Reference signs are not limiting the scope of a claim. A simple way to clarify the claim is to remove the parentheses.
8. The subject-matter of claim 2, 10 and 12 does not meet the requirements of Article 6, because the wording "said image intensifier to suit the specific time slot that was essentially completed, of deflecting the light rays" is not clear. It is not obvious that the light intensifier is switched on after the time the MEMS element needs to bring the mirrors in a position to deflect the bright light.